CVI. *An Account of Mr.* Samuel Tull's *Method of caſtrating Fiſh. Communicated by* W. Watſon, *F. R. S.*

To the Royal Society.

Gentlemen,

Read Dec. 19, 1754. SEveral years ſince, Mr. Tull of Edmonton performed the operation of caſtrating fiſhes, before Sir Hans Sloane, Bart. and ſeveral members of the Royal Society, who met at Sir Hans's houſe for that purpoſe. About five or ſix years ago he performed the ſame operation in preſence of our late worthy Preſident Mr. Folkes, myſelf, and ſeveral others. Among theſe was a very valuable member of this Society, Mr. Trembley, who is with the Duke of Richmond on his travels, and is now at Feltzberg in Auſtria, at a country-ſeat of the Prince of Lichtenſtein. This nobleman, who is a great lover of natural hiſtory, as well as a zealous promoter of uſeful knowlege, is very curious in whatever relates to the hiſtory of fiſhes; and being informed by Mr. Trembley, that he had ſeen fiſhes caſtrated in England, and of the advantages which he had been aſſured did reſult from it, his highneſs intreated him to procure him from hence the moſt exact account of the manner of performing this operation, and of ſeveral particulars relating thereto.

Mr. Trembley accordingly wrote me a letter, deſiring me, if poſſible, to tranſmit to him this information. In conſequence of which, I wrote to Mr.

Tull, who in a few days was ſo obliging as to anſwer my letter, and to ſend me what I had requeſted of him, and which I accordingly have tranſmitted to Mr. Trembley, for the Prince of Lichtenſtein. But as nothing of this ſort has been communicated to the Royal Society, as a body, I thought it not improper to lay before you Mr. Tull's account of his operation; that, if it be thought worthy, it might be recorded in the journals and regiſter-books of the Society.

In England, where in many parts ſea-fiſh are in great plenty, the fiſh of rivers and ponds are leſs eſteemed; and improvements, either with regard to their bulk or increaſe, are leſs attended to: but in Germany, remote from the ſea, where pond-fiſh are a great article of traffic, Mr. Tull's method may be of great uſe.

Mr. Tull informs me, that he caſtrates both the male and female fiſh; and that, although almoſt any time is proper for the operation, the leaſt ſo is juſt after they have ſpawned, as the fiſh then are too weak and languid to bear, with ſucceſs, ſo ſevere an operation. The moſt eligible time however is when the ovaries of the female have their *ova* in them, and when the veſſels of the male, analogous to theſe, have their ſeminal matter in them; inaſmuch as at this time theſe veſſels are more eaſily diſtinguiſhed from the ureters, which convey the urine from the kidneys into the bladder and are ſituate near the ſeminal veſſels on each ſide of the ſpine. Theſe may, without ſufficient attention, be taken for the ovaries; and the more ſo, when theſe laſt are empty. When fiſhes have ſpawned a few weeks,

weeks, they are fit for the operation; for, like hens, they have ſmall eggs in their ovaries as ſoon as they have laid their former clutch of eggs.

When a fiſh is intended to be caſtrated, it muſt be held in a wet cloth, with its belly upwards; then with a ſharp pen-knife, with its point bent backwards, or other well-adapted inſtrument, the operator cuts through the integuments of the rim of the belly, and in doing this he carefully avoids wounding any of the inteſtines. As ſoon as a ſmall aperture is made, he carefully inſerts a hooked pen-knife, and with this he dilates this aperture from between the two fore-fins, almoſt to the anus. From the back of this inſtrument, being blunt, the danger of wounding the inteſtines is avoided. He then, with two ſmall blunt ſilver hooks, of five or ſix inches long, and of the * form hereunder deſcribed, by the help of an aſſiſtant, holds open the belly of the fiſh; and, with a ſpoon or ſpatula, removes carefully the inteſtines from one ſide. When theſe are removed, you ſee the ureter, a ſmall veſſel, nearly in the direction of the ſpine; and at the ſame time the ovary, a larger veſſel, lying before it, that is, nearer the integuments of the belly. This laſt veſſel you take up with a hook of the ſame kind with thoſe before-mentioned, and detaching it from the ſide far enough for the purpoſe, divide † it tranſverſely with a pair of ſharp ſciſſars; remem-

---

* ∩

† Mr. Tull has frequently, to prevent the re-union of the divided ovaries, by which the effect of the operation might be defeated, taken out part of them, and nevertheleſs the fiſh have ſurvived.

bering

bering always, that great care is taken in not wounding, or otherwiſe injuring, the inteſtines.

After one of the ovaries has been divided, proceed in the like manner to divide the other; and then ſew up the divided integuments of the belly with ſilk, inſerting the ſtitches at a very ſmall diſtance one from the other.

Mr. Tull firſt put this method into practice, in order to prevent the exceſſive increaſe of fiſh in ſome of his ponds, where the numbers did not permit any of them to grow to an advantageous ſize. But from caſtration the increaſe was not only prevented, but the caſtrate fiſh, as Mr. Tull aſſerts, grew much larger than their uſual ſize, were more fat, and, which is no trifling conſideration, were always in ſeaſon.

He obſerves further, that the ſpawning-time is very various: that trouts, for inſtance, are full about Chriſtmas; perch in February; pikes in March; and carp and tench in May. You muſt always, however, make ſome allowance for climate and ſituation, with regard to the ſpawning of fiſh. And, from a very diligent attention, he aſſures me, that he has been able to ſettle a point much controverted by naturaliſts, in relation to the copulation of fiſhes. The moſt generally received opinion has been, that they did not copulate; but that the female did caſt her ſpawn in the water, and that then it was fecundated by the ſpermatic matter of the male. Mr. Tull, in contradiction to this hypotheſis, aſſerts, that he has frequently ſeen fiſhes in actual copulation; and that this is generally done before the ova arrive at maturity.

After Mr. Tull has caſtrated his fiſh, they are put into the water where they are intended to continue. He makes no particular appropriation, neither with regard to the ponds into which they are put, nor does he give them any particular nouriſhment; but they take their chance in common with other fiſh, as though they were not caſtrated. And he informs me further, that if tolerable care is taken, very few fiſh die of the operation, when performed in the manner here deſcribed; though heretofore, when, inſtead of the belly, he made the opening in the ſides of the fiſh, numbers died, from his wounding the inteſtines, and frequently dividing the ureters.

I am, with all poſſible reſpect,

Gentlemen,

London, Dec. 11, 1754. Your moſt obedient humble ſervant,

William Watſon.

CVII.